

## **A FULL DUPLEX TRANSCEIVER**

### **Abstract**

The invention includes a full duplex transceiver for transmitting and receiving communication signals. The transceiver includes 1 to N sample and hold circuits. Each sample and hold circuit receives a first signal that includes a far-end signal, and in some cases an echo signal, and in some cases alternatively or additionally cross-talk signals. The transceiver additionally includes a plurality of subtraction circuits. Each subtraction circuit receives an output of at least one of the sample and hold circuits. Each subtraction circuit subtracts at least a fraction of a replica signal from at least a fraction of the output of the at least one of the sample and hold circuits. The subtraction circuits generate an output that represent the far-end signal with substantially reduced echo and/or cross-talk interference, and is available for additional receiver processing.